



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,059	04/08/2004	Toshiro Matsuda	023971-0406	6922
22428 7590 02/22/2007 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER ZANELLI, MICHAEL J	
			ART UNIT	PAPER NUMBER
			3661	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/22/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/820,059

Applicant(s)

MATSUDA ET AL.

Examiner

Michael J. Zanelli

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8,10-14 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 3-6,9,15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 4/8/04; 5/24/06.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The application filed 4/8/04 has been examined. Claims 1-20 are pending.
2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
3. The IDS filed 4/8/04 and 5/24/06 have been considered.
4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 7, 8, 11, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by JP8-133086.

A. As per claims 1, 19 and 20, as can best be determined JP8-133086 discloses a drive control apparatus as shown in the Figure comprising at least one pair of parallel road wheels driven independently by electric motors (6,7) connected to a power supply (5) in a serial circuit configuration (see Abs).

B. As per claims 7, 8 and 11, as above whereby the series connection may be changed to a parallel connection upon manipulating a control device. Manipulation of a control device also enables control of the series connected motors during a turning operation (Abs; [0011-0012]).

Art Unit: 3661

7. Claims 1, 7, 11, 19 and 20 are further rejected under 35 U.S.C. 102(b) as being anticipated by Ward (4,042,055).

A. As per claims 1, 19 and 20, Ward discloses an automotive vehicle (Figs. 1,2) having a pair of parallel road wheels (10), each having an independent driving motor (30) associated therewith, and a power supply (36) connected in a serial circuit with the electric motors (Fig. 7).

B. As per claims 7 and 11, as above whereby a switching circuit is provided for connecting the motors in parallel or series upon manipulation of a control device (Fig. 7; col. 4, line 36 to col. 7, line 23).

8. Claims 1, 19 and 20 are still further rejected under 35 U.S.C. 102(b) as being anticipated by Losego (6,279,672).

A. As per claims 1, 19 and 20, Losego discloses an automotive vehicle (Figure) having a pair of parallel road wheels (5,6), each having an independent driving motor (7,8) associated therewith, and a power supply (1,3) connected in a serial circuit with the electric motors.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 3661

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 2, 12-14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP8-133086 or Ward or Losego in view of Kim (4,953,646) and JP2000-318473.

A. As per claim 2, JP8-133086, Ward and Losego each disclose the drive controlling apparatus as detailed above whereby the power supply is embodied as a battery. The claimed invention differs in that an engine and generator are used to supply the power to the electric motors. However, at the time of applicant's invention it was known in the electric vehicle art to alternatively supply power to the electric motors using an engine and generator (see as exemplary Kim: Fig. 1). One of ordinary skill in the art would have found it obvious to use this alternative source of electric power for the batteries found in the prior art whereby costs and specific applications would have been factors to be considered in selecting the appropriate power source.

B. As per claims 12, 13, 17 and 18, JP8-133086, Ward and Losego each disclose the drive controlling apparatus as detailed above whereby electric motors are used to drive a pair of wheels. One of ordinary skill in the art would have found it obvious that the disclosed drive control would work equally with four motor driven wheels or a combination of engine driven wheels and motor driven wheels. For example, JP2000-318473 discloses that it was known in the vehicle arts to use an engine to power a front set of wheels whereas electric motors are used to power a rear set of wheels. Such a

Art Unit: 3661

combination improves fuel economy, reduces air pollution and/or provides for increased traction under slippery conditions.

C. As per claim 14, as above whereby the motors are connected to the drive axles using clutches and speed reduction gears (see as exemplary Kim).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP8-133086 or Ward in view of Posma et al. (2003/0090225).

A. As per claim 10, JP8-133086 and Ward are applied as above. The claimed invention differs in that the parallel circuit configuration is selected upon detecting acceleration slip. However, at the time of applicant's invention it was known in the art to operate the motors in a parallel configuration to function like a slip differential when at least one of the wheels experience slip (see as exemplary Posma: Abs). One of ordinary skill in the art would have found it obvious to apply the teachings of Posma to the systems of JP8-133086 and Ward because it would have increased traction during slippery conditions.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited documents are of general interest.

13. Claims 3-6, 9, 15 and 16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record does not show or reasonably suggest, in combination with the other claimed subject matter, driving force difference detecting section and field current correcting section (3-6,16) or oversteering tendency determining section (9) or

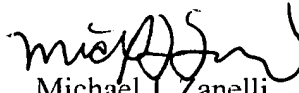
Art Unit: 3661

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Zanelli whose telephone number is (571) 272-6969.

The examiner can normally be reached on Monday-Thursday 9:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Michael J. Zanelli
Primary Examiner
Art Unit 3661

/mjz